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cism of the editors of the GAZETTE, it will only be fair to myself that I take the benefit of the doubt, and lay them in full before my fellow students, and I hope before long to find some opportunity of doing so.

Germantown, Pa.

THOMAS MEEHAN.

[The GAZETTE's criticism was not directed wholly to Mr. Meehan's papers, as he assumes. Much less were any papers judged by the amount of "entertainment" or "temporary interest" they afforded. The criticism was aimed wholly at their character as *scientific* productions, as which, it is to be assumed, they are presented.—EDS.]

CURRENT LITERATURE.

Origin of our Trees.

Paleobotany, founded by Adolphe Brongniart, is a subject of great and increasing interest. The difficulties with which it has to contend are enormous, and its growth necessarily slow, but a few years has brought much information, and paleobotanists are to be commended for their great activity. Eminent among the multiplying workers is Count Saporta, whose last work¹ is before us, on the origin of trees cultivated or used by man. The text is interspersed with 44 excellent figures, and the whole treatment of the subject is remarkably clear. Of course it would be impossible in this brief sketch to give any detailed account of a book which is entirely made up of details, but a brief synopsis of contents will serve. The subject proper begins with a discussion of the various groups of gymnosperms; in the second division the monocotyledons are considered, with such forms as the palms and smilax; the third and largest division is devoted to dicotyledons, its many arborescent orders being taken up in succession. The figures are very suggestive, and being usually labelled as the ancestral forms of familiar modern groups, at once catch the attention of a botanist. One of the most excellent features of the book is a synoptical table, which gives in a condensed form, arranged according to geological chronology, the beginnings of the various groups. By this means a glance will catch facts which otherwise would demand much reading for their discovery, and probably would be lost sight of entirely unless the reader was very conversant with French. For instance, one sees that the Carboniferous has given the first indication of the existence of Cycads, the primitive *Salisburias*, etc., while the type *Salisburia*, or *Ginkgo*, is not established until the Permian. In the upper Trias we find the ancestors of the *Cupressinæ*; while in the lowest member of the Cretaceous the first dicotyledons are discovered, and possibly the genus *Populus*, an appearance which is speedily followed in the upper Cretaceous (Cenomanian) by a great abundance of dicotyledonous types. This

¹ SAPORTA, LE MARQUIS G.—*Origine paléontologique des arbres cultivés ou utilisés par l'homme*. Pp. xvi. 360. Paris: J. B. Baillière et fils, 1888. Price 3 fr. 50c.

simply serves to illustrate the great amount of information that can be obtained from a table which seems to be packed with details. We commend this book to all botanists interested in the subject, as one which will give them a vast amount of accurate information upon a subject whose literature is widely scattered or hard to obtain.

A Monograph of the Lotus.

Dennert, who completed and edited this posthumous monograph,² tells us that Wigand was well known to be an energetic adherent and defender of the doctrine of the fixity of species. He hoped to secure, through the work of his students and others, a series of exhaustive monographs, not only of families and genera, but also of species, in which every character of the plant should be set forth. From such a series of works upon nearly related plants, he hoped to be able to draw important conclusions regarding the value of specific characters, the relations of variation, and particularly to obtain an exact definition of the term "species." As an indication of the sort of work which he wished, he undertook this monograph on a most interesting plant, the famed Lotus. But the work was interrupted and left incomplete at the author's death, and Dr. Dennert, assistant in the botanical institute at Marburg, added the anatomy of the nodes, the leaf blade and its origin from the petiole, etc. The paper discusses the morphology, development and anatomy of every part of the plant, and concludes with biological remarks on the starch in the leaves and rhizome, and on the vegetative and resting conditions of the rhizome. From this it will be seen how wide is the scope of the monograph. Its execution is admirable and the paper may well be taken as the model it was intended to be. This is the exhaustive style of work to which we have exhorted American botanists.

Minor Notices.

THE INSECT RELATIONS of flowers receives a fresh contribution from Mr. L. H. Pammel, who writes of the pollination of *Phlomis tuberosa*, and the perforation of flowers by insects.³ *Phlomis tuberosa* is compared with *P. Russeliana*, of whose pollination an account is given by Loew, and which it much resembles. On the perforation of flowers Mr. Pammel has collected much widely scattered literature, both on the direct subject and several related ones. The paper is accompanied by a very full bibliography, and will certainly be of much service to students in this field.

PROFESSOR JOHN MACOUN has just distributed the "Endogens" of his catalogue of Canadian plants.⁴ Any one familiar with the other parts

² WIGAND, ALBERT.—*Nelubium speciosum* W., eine monographische Studie, vollendet u. herausg. von E. Dennert. (Bibliotheca botanica, heft 11), pp. 67. pl. vi. 4to. Cassel Theodor Fischer. 1888. M. 12.

³ PAMMEL, L. H.—On the pollination of *Phlomis tuberosa* L., and the perforation of flowers (Contributions from the Shaw School of Botany, no. 1). Pp. 241-277. pl. vi and vii. Svo. Separate print from the Trans. St. Louis Acad. Sci., vol. v. St. Louis, June 28, 1888.

⁴ MACOUN, JOHN.—Catalogue of Canadian Plants. Part IV.—Endogens. (Geol. and Nat. Hist. Survey of Canada.) 248 pp. Montreal: Dawson Bros., 1888.

understands the painstaking work this represents. The detailed enumeration of stations can not but be of vast help, not only to collectors, but in the study of geographical distribution as well. Professor Macoun has availed himself of all possible help from specialists, so that the catalogue contains the most recent changes in nomenclature. This part brings the genera to 737 and the species to 2955.

THE LONG HOPED for continuation of Professor Tuckerman's Synopsis of N. Am. Lichens has appeared, under the editorship of Mr. Henry Willey.⁵ The work could not have fallen into more competent hands. This second part was found in a sufficient state of preparation to justify publication, and very little revision has been necessary. The presentation of the large genera *Biatora*, *Lecidea* and *Buellia* will be a great help to our amateur lichen students, large parts of whose collections were very indefinitely named. The genus *Graphis* is incomplete, but sixteen species being included in this part. Mr. Willey has done good service also in adding, in the form of an appendix, descriptions of N. Am. lichens not found in the Synopsis, but published by Professor Tuckerman in scattered publications which are not easily obtained.

"HOW TO STUDY BOTANY" is the title of a very interesting paper by Dr. T. J. W. Burgess, of Hamilton, Ontario, read before the Hamilton Association.

THE MEDICAL plants of the United States have attracted attention from Rafinesque down. The most recent contribution to this subject is by Dr. Carter,⁶ of Waukegan, Ill. The list is a very long one (over 300 species), but only includes those plants whose medicinal properties are definitely known. The work has been carefully done, and forms a very compact reference book for information of that kind.

THE PLANTS of Nantucket are published by Maria L. Owen in a very carefully prepared catalogue.⁷ Nantucket county means practically Nantucket Island, and the enumeration shows 586 species of phanerogams exclusive of varieties. Pteridophytes and algæ are also catalogued. The names of the botanists who have assisted the author are numerous and well known, and we may be sure that the catalogue represents a very accurate and exhaustive account of the flora of this island of fifty square miles.

MISS HELEN C. DES. ABBOTT is a very active worker in the comparative chemistry of plants, and her paper on "Comparative chemistry of

⁵ TUCKERMAN, EDWARD.—A Synopsis of the North American Lichens: Part II., comprising the *Lecideaceæ*, and (in part) the *Graphidaceæ*. 76 pp. Sold by Edwin Nelson, Amherst, Mass., at \$1.

⁶ CARTER, J. M. G., M. D.—A Synopsis of the Medical Botany of the United States. Pp. x. 176. St. Louis: Geo. H. Field, 1888.

⁷ OWEN, MARIA L.—A catalogue of plants, growing without cultivation, in the county of Nantucket, Mass. Pp. xii. 87. Northampton, Mass., 1888.

higher and lower plants," in the *Am. Naturalist* for August and September, 1887, has just been distributed as a reprint.

AN ELABORATE study of the structure, development and affinities of *Trapella*, a new genus of Pedalineæ, is presented by F. W. Oliver in the *Annals of Botany* (June), and now distributed as a reprint. It is a Chinese plant of doubtful affinity, but this study rests it in Pedalineæ, as the only genus of a new tribe. It contains certain structures of great interest biologically. The five handsome double-page plates form a fitting accompaniment to a very fine piece of work.

ONE of the best local catalogues we have seen is that of Middlesex county, Mass., prepared by Messrs. Dame and Collins.⁸ Not only is it printed with great care, but contains just the information one desires. In addition to the usual presentation of phanerogams and pteridophytes, it contains the mosses, liverworts, stoneworts, algæ and lichens. Dealing with an old country and one full of collectors, the list must be a very complete one. The summary shows an enumeration of 2061 species, 1,484 of which are phanerogams, 60 pteridophytes, 156 bryophytes and 361 thallophytes. In a private letter the authors say that the name of Mr. I. C. Martindale was inadvertently omitted from the list of those who had aided in the work.

NOTES AND NEWS.

IN A RECENT fire the Syracuse Botanical Club lost all of its collections, books and instruments.

MR. LESTER F. WARD's address on "Asa Gray and Darwinism" has just been distributed.

DR. G. F. KOHL, *privat-docent* in Marburg, became associated with Dr. Uhlworm in editing the *Botanisches Centralblatt* on the first of August last.

MR. F. W. ANDERSON, of Great Falls, Montana, has been appointed a special agent in the Division of Botany of the Agricultural Department.

THE *Journal* of the Elisha Mitchell Scientific Society, in its first part for 1888, contains a preliminary list of North Carolina Desmids by W. L. Poteat.

THE ILLUSTRATIONS of our native plants in *Garden and Forest* for August include *Cypripedium Californicum* (8th), and *Erythronium Hendersoni* (29th).

M. L. MOROT (in *Journ. de botanique*) shows that the anatomical structures of the anomalous *Adoxa Moschatellina* are more suggestive of Saxifragaceæ than of Caprifoliaceæ.

⁸ DAME, L. L., and COLLINS, F. S.—*Flora of Middlesex county, Mass.* Pp. 201, with map. Malden: Middlesex Institute. 1888.